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ORIGINAL ARTICLES.

A CASE OF SUSPECTED ACUTE FATTY DEGENERATION OF THE KIDNEYS; ECLAMPSIA, AND REMARKABLE COMPLICATIONS.

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The writer reports the following case because of the remarkable complications. It is not unusual in the practice of medicine to meet complicated cases, and one is not infrequently astonished at the cures which nature will effect. Oliver Wendell Holmes once said, that if all the medicine in the world were thrown into the sea, it would be much better for the people and much worse for the fishes. I presume we are all inclined to agree with him in most cases; but now and then a case appears which the physician is able to cure with medicines, and a life so saved (when there is no room for doubt as to what brought about the cure) is well worth the administration of a great deal of useless medicine. In the following case there is no reason to doubt that a hypodermic injection of five grains of sulphate of magnesium saved the patient's life. That the action was due to the drug cannot be questioned, for I have demonstrated to my own satisfaction, that such an injection will produce a free movement of the bowels in the patient in about four hours. This I have demonstrated not once, but several times.

The patient was the wife of one of the professors at the Territorial University, which institution is located about a mile and a half from the city. During the illness we were at times unable to get drugs until after considerable delay; but this was, in the end, more of an inconvenience than an actual harm.

The patient, Mrs. H., aged 25, had always enjoyed good health. Her personal and family history was negative. After she became pregnant she employed Dr. H. N. Matas, of Tucson, to take charge of her case until after confinement. She spent the summer in California, but at no time felt the need of a physician. The following history of the case is from the time I was called by Dr. Matas:

The patient was in the seventh month of pregnancy, a primipara, and the gestation had been normal up until the previous Thursday. On that day she had invited a few friends to dine with her, but the exertion she had undergone in supervising her work had been too much for her, and before dinner was announced she was compelled to go to bed with what she supposed was a bad head-

ache. That night, however, about midnight, she was seized with intense pain in the epigastrium, and her physician was sent for who administered a hypodermic injection of morphine. The following day she felt better, but towards evening the symptoms again returned—headache and pain in the epigastrium. Toward morning vomiting set in, and at 6 A. M. the patient suddenly became unconscious. Dr. Matas was sent for, but before he arrived she was seized with convulsions. The nurse had not been summoned and the ladies who happened to be present, knowing nothing else to do, applied hot water bags to her feet. Unfortunately the water was too hot, and two very serious burns resulted, one on each foot. This fact is mentioned because the results of these burns were most serious and came near costing the patient her life.

I was sent for by Dr. Matas immediately upon his arrival, and the case was left in my charge; Dr. Matas promising to consult with me every few hours until the crisis was past. He had already administered two drops of croton oil and some digitalis. We agreed upon the generally adopted method of treatment, and I at once set about to promote the secretions.

Before anything could be done the patient was seized with a terrific clonic convulsion, the last which she had. I at once administered two hypodermic injections of magnesium sulphate, about five grains each, one hypodermic injection of digitalis (thirty minims), and not having at hand any hypodermic tablets of pilocarpine I made bold to inject beneath the skin thirty minims of the fluid extract of Jaborandi. The patient was literally packed with hot water bottles, and well covered. Every fifteen minutes, as soon as she could swallow, I exhibited several tablespoonfuls of a saturated solution of magnesium sulphate and an occasional half grain of the mild chloride of mercury. In addition to this, I had several enemata given, containing salines, and an occasional large enema of very hot water. At the end of two hours the patient was perspiring, and at 4 P. M. she had a copious evacuation from the bowels. In the meantime I had her catheterized and obtained about one-half ounce of dark

concentrated urine, which almost solidified on boiling. Under the microscope I found innumerable tube casts; some narrow and hyaline, some broad and hyaline, both narrow and broad granular, with occasional oil globules and pus corpuscles, and many casts thickly studded with red blood corpuscles.

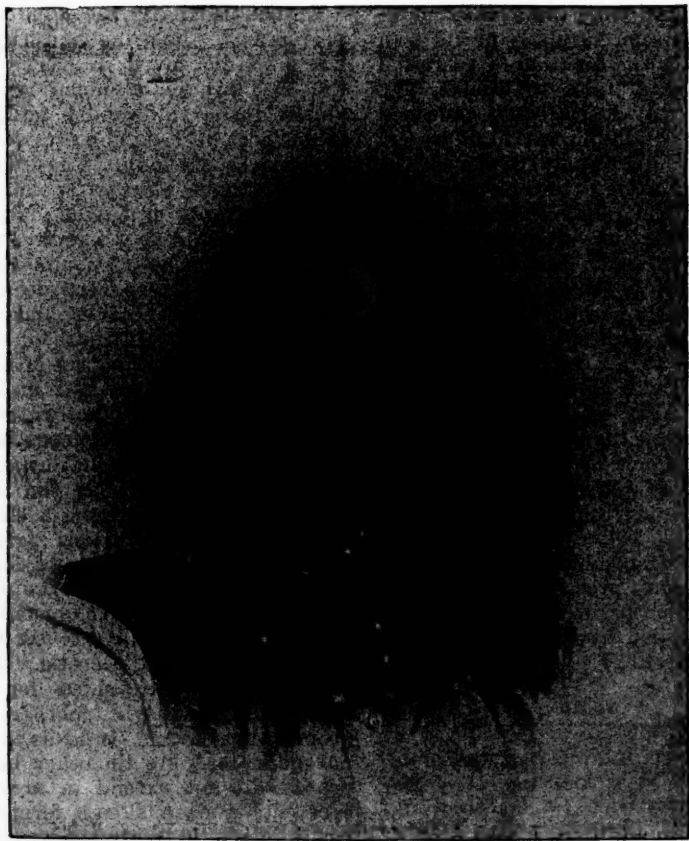
From the microscopical evidences of the gravity of the case, I at once gave an unfavorable prognosis; telling the husband that the mortality before labor in cases of eclampsia, is always about 50 per cent, he could not have expected, had the case been uncomplicated, a very hopeful outlook. As it was, considering the character of the tube casts, I could not but pronounce the case one of chronic nephritis, and even temporary improvement seemed out of the question.

After the patient had several free movements the uræmic symptoms seemed to abate in a general way. But her heart was alarmingly fast and weak. With my ear over the heart of the fœtus I could not distinguish the fœtal cardiac impulse; and inasmuch as the uterus occupied an exceedingly low position in the pelvic cavity I thought it advisable to effect immediate delivery. I therefore telephoned to the city for Drs. Matas and Whitmore, and upon their arrival we at once began rapid dilatation with the Barns' bags. As there was absolute uterine inertia, the membranes were ruptured and the forceps applied high up. The delivery was then rapidly accomplished by Dr. Matas, the infant being dead. The patient was by this time pulseless, but after numerous hypodermic injections of strychnia, alcohol, ether and nitroglycerine, she rallied slightly. During the entire night her condition was most precarious, and I considered dissolution imminent.

For twenty-four hours following the delivery, no pulse could be detected in the left wrist, and in the right wrist it could only be detected irregularly. The heart beats were exceedingly rapid and soft, and occasionally even irregular. The second night following delivery the heart was not so bad; the patient seemed to rally somewhat, but I did not dare to leave her for more than a few moments at a time, and hypodermic medication was kept up unceasingly. About 6 o'clock on Monday morning, the

second day after delivery, I stepped out to a neighboring house for breakfast, and as the patient seemed slightly stronger I did not return for a half hour. When I returned the patient seemed to be dying. She was lying on the left side, and the blood was rapidly settling in the dependent portions of the face and body. Extravasation had taken place at every point of hypodermic injection; the finger nails and hands blue; the

tions of the body for nearly a week; and that the site of every hypodermic which I administered during that half hour became gangrenous and sloughed out. In a moderately fair experience in hospital and private practice, extending over a number of years, I have never seen a case revive after approaching so near to death. For those thirty-six hours following delivery the heart seemed to require constant stimulation.



flexor muscles of the forearms contracting; the patient pulseless, and presenting every evidence of approaching death. I gave her hypodermic injections of nitroglycerine, ether and brandy, and to my surprise she reacted.

That the reader may not imagine that I have exaggerated the gravity of the symptoms I shall say that the hypostatic congestion did not leave the right side of the face, or the dependent por-

The moment we ceased plying hypodermics the heart would flag. I was of the opinion that this symptom was the result of the depressant action of some ptomaine which was retained in the blood during her period of kidney insufficiency.

During all this time the patient was purged as freely as possible, and attention was given to re-establishing the function of the kidneys.

For this purpose a combination of diuretics was used. My experience with diuretics leads me to believe that better results can almost always be obtained from a combination of drugs than from any single drug. Thus, with caffeine, which I have found a very reliable diuretic, I can never get as good results as with caffeine and digitalis combined. It is not so much the quantity of urine which is increased by the combination, but the function of excretion is established, and that done, the kidney maintains the excretion normally of its own accord. After the function of secretion is established, diuresis to almost any quantity one may desire, can be obtained by the simple administration of water. My remarks do not apply, of course, to any condition where there is much destruction of the renal epithelium; nor would I advise the administration of water in the presence of dropsy. But in any condition of acute Bright's, or of moderately early chronic Bright's, complicated by an acute attack, or in suppression, due to central cause, I think my statement will hold true: that if the vital function is established no more powerful diuretic than water is required; and that the function of the kidney is more readily established by a combination of diuretics than by any single drug.

The following combination is the one I most frequently prescribe and is, I believe, with some slight modification, the one recommended by H. C. Wood, as a "general diuretic."

R

Caffeine Citratgrs. iij.

Pulv. Digital

Pulv. Scillæ aa.....grs. ij.

M. et ft. cap. Sig: One cap. every four to six hours.

Sometimes in addition I add $\frac{1}{2}$ or $\frac{1}{4}$ grain calomel to the above, and I have also used in combination oil of sandalwood and the alkalines. I have found sandalwood a prompt and certain diuretic. I usually use Midy's capsules. Although I believe in rational therapeutics, I must say that there are times when one is compelled to admit that clinical results do not conform to theoretical teachings. For example, we all know that alcohol is a renal irritant; yet I have in some cases gotten good

diuresis from the administration of brandy; again, I have never seen any ill effects from the use of squills in acute Bright's, and I have prescribed it with good results in many cases.

In the case of Mrs. H., which we are now considering, in addition to a combination of diuretics, we made counter-irritation over the kidneys, and kept the skin fairly cool. At the end of forty-eight hours, a free flow of urine began and was maintained.

On the fourth day the albumen disappeared from the urine and the patient was much improved in every way. On the fifth day the albumen reappeared, and on the sixth day, dry gangrene set in in both feet, and in various other places over the body. The two burns, which I have already spoken of the feet, were quite extensive. The entire sole of the right foot was involved, and quite an extensive portion of the sole of the left. The burns were deep enough to raise a thick blister and were intensely painful. In spite of the most assiduous care on the part of my assistants and myself, we had managed so badly in the use of hot-water bottles while the patient was unconscious, that we inflicted several slight burns. One on the left buttock, about the size of a man's hand, one on the left elbow, and several others on various parts of the surface. None of them were deep, however, not even sufficient to raise a blister. But with the development of gangrene we were appalled to see them all blacken and become necrotic. The gangrene gradually extended for several days. On the right foot, it passed around the sole and as far as the external malleolus. At the other burns the process did not extend in area, but in each site a deep slough formed. The usual antiseptic treatment was followed and the sloughs removed as fast as they separated. Lines of separation formed and the process stopped. At the end of ten days all the surfaces were granulating nicely, and the patient apparently recovering. A little albumen and some casts were, however, always present, the casts presenting unmistakable evidences of destruction of the renal epithelium. About this time, also, the patient developed albumenuric retinitis in both eyes, and was totally blind to everything

but light for about a week. Eserine was used freely, but through fear of gangrene no very severe counter-irritation was used, and as no leeches were obtainable, we were simply compelled to be content with keeping the room dark and the pupils contracted.

On the twenty-first day, the patient developed phlegmasia alba dolens in the left leg, and a day or two later a number of points, where hypodermic injections had been given twenty or twenty-one days before, showed unmistakable evidences of gangrenous change. The leg was wrapped in cotton, bandaged and elevated. Those points of gangrene, which formed a slough on the skin, were opened and the slough removed; the others were left alone. The tendency towards gangrene prevented our adopting any method of treatment which would necessitate a wound. For the same reason we were afraid to elevate the swollen leg to more than a moderate height, and afraid to bandage. The albumen and casts continued; the temperature rose to from 101° to 102.5° in the evening; the tongue became badly coated; the breath foul; and every evidence of a low grade of septicæmia developed. The patient suffered intensely from pain, was restless and nervous. She slept poorly and could not be induced to eat. The appetite became so poor that we again resorted to a milk diet, and forced the nutriment as in any other case of prolonged illness. In the course of a week the phlebitis and lymphangitis subsided and the patient felt much better.

She had a few days interval and then developed phlegmasia on the right side, and went through with it in much the same manner. The sloughs from the hypodermics gradually healed and the granulating surfaces from the burns began to do well. From this time on the patient's condition gradually improved, with the exception of the albumen which became constant; and the tongue, which remained coated. Gradually the burns healed and finally all surgical attentions became unnecessary, and in due course of time all complications disappeared, and we believed that we had to deal with a simple case of chronic nephritis.

About two o'clock on the night of Nov. 22d, however, the patient awoke

with a violent headache; there was increase in the albumen and every evidence of uræmia. All through the next day the symptoms increased in severity, the urine became suppressed and the patient gradually sank into a stupor. During the night, paralysis of the left side of the face and the right side of the body developed; the left pupil contracted and the right dilated. By the following morning the patient had become so comatose that she could only be induced to swallow with the greatest difficulty. The coma deepened and finally the patient could no longer swallow at all. The case was now considered hopeless and the friends were told that her recovery would be nothing short of a miracle. Considering the trouble we had had with the hypodermics during the former attack we hesitated to resort to such heroic medication as before, but as there was nothing left to do, I again resorted to hypodermics of sulphate of magnesia and other drugs as the symptoms indicated, in the orthodox way. Imagine my surprise, four hours after the first hypodermic of magnesia, to find that the patient had had a very copious evacuation. The medication was kept up unremittingly and at the end of twenty-four hours she began to show signs of returning consciousness. Gradually the pressure disappeared from the brain and the patient recovered. In the course of a few weeks the albumen disappeared from the urine and for the last four weeks no more than a trace has appeared. The patient's tongue cleared off, she developed a good appetite, and to-day is practically a well woman.

The paralysis disappeared gradually, and the only remaining sequelæ are some slight impairment of vision and quite marked lack of cerebral coördination, which manifests itself in making the patient peculiarly quiescent and happy; possibly slightly indolent. Another peculiarity is the inability to express herself properly. In her own language she says she "can't think." She reasons fairly well but is unable to find words to express her ideas. It is my opinion that she will finally regain her mental faculties, but it may not be until after the lapse of considerable time. The vision, I believe, will be permanently impaired.

It is rather hard to reconcile the facts

in this case, with regard to the tube casts. At present there are no casts to be found in the urine, even after the most careful and prolonged search. One would naturally infer that I had been mistaken in the nature of the casts which I had seen; but I am quite confident of what I saw, and moreover I am well enough qualified to give an opinion as to the different varieties of casts. It is my opinion that the case was one of acute

fatty degeneration of the kidneys upon which had supervened an acute congestion. It may be possible that the patient is still suffering from chronic Bright's; but there are no evidences of atheromatous change, and so far as I am able to judge, the patient is a well woman.

The photograph which accompanies the report was taken a fortnight ago. A slight spastic condition of the left side of the face is apparent on close inspection.

SOME REMARKS ON ACETANILID, ITS ACTION AND USES.

WILLIAM MARTIN, M.D., BRISTOL, PENNA.

This drug, or as it is synonymously termed, antifebrin or phenyl-acetanilid, has recently been attracting the attention of the profession generally, owing to some new developments in its sphere of usefulness. While it has for some time been recognized to be a valuable remedy in many affections, it has only recently been used as an external application, and in this new field its usefulness seems to be almost unlimited. While at present it is practically passing through the stage of experimentation in this particular line, it is destined, no doubt, to fill a permanent niche in our list of local remedies.

Acetanilid is a white crystalline material, somewhat resembling boric acid in appearance, and is made by the action of glacial acetic acid on aniline. It is odorless and almost tasteless, and if purchased as acetanilid, is very cheap.

It is freely soluble in alcohol, and in twenty volumes of ether. In water it is less so, being insoluble in less than two hundred volumes. In liquid cosmoline it dissolves in the proportion of forty grains to the ounce.

Action.—The important actions of this drug upon the organism are three, namely, *antipyretic*, *analgesic* and *antiseptic*, and are all of a decided type.

As an *antipyretic*, we find it reduces temperature very promptly in some cases by its exhibition in repeated small doses, the first effect being a gentle perspiration, followed by a quiet sleep.

It does not appear to have any decided cumulative effect from continuous dosage that may be considered a constant feature of its action, although in a few cases it has been noticed to a certain extent. For instance, after long use of acetanilid in a fever, the effect has been about the same when the dose was reduced to almost one-half, and continued at that point. That this is not constant I feel assured, as in some instances I have tested it thoroughly, and as soon as the amount was reduced the fever would increase, only to fall as the dose was renewed at the first amount. This is the result only in a limited number of cases, so I do not feel like making it as a positive statement. As an *antipyretic* it is generally conceded to be a safe remedy in the majority of cases. Occasionally we find a subject with a peculiar idiosyncrasy, with whom it acts badly. This is shown by a profuse perspiration quickly following its use, with decided vital depression as the second effect. In some cases this result may follow even mild dosage with the drug, although less frequently. In these subjects it is wise to discontinue its use, for even smaller doses will prove of little or no value, if not even harmful.

The *analgesic* effect is pronounced when acetanilid is given in large doses. With this drug, as with some others, there seems to be a great amount of tolerance during attacks of a neuralgic na-

ture, so that it is surprising to note the size of the doses borne by some cases of this character. This being the case, it gives us the chance to push the dosage and thus get prompt results. My opinion is that with this remedy the best results may be had in most cases, for it has proven so in my practice, taking the place of every other drug that is used for similar purposes. As an analgesic it may be substituted for morphin where there is danger of the patient becoming addicted to the habitual use of the latter remedy. I have not found recorded any cases of habit from the use of acetanilid, nor have I ever heard of such, therefore it must be a far safer drug than morphin, although perhaps it cannot fully displace it in all cases. The lack of hypodermic use will preclude that possibility for the present. Its *antiseptic* action is of a pronounced type. The knowledge has only recently been gained through experimentation, but is now an assured fact. By this, I mean, as an external application. That it has a real value as an internal antiseptic is conceded by many, but not to the point of usurping the place of other well-tested drugs used for similar purposes. This will be referred to again.

The dose varies according to its use. As an antipyretic it must be smaller than when used as an analgesic. Children bear proportionately larger doses than adults.

Antagonist.—Atropin seems to be the drug that will counteract its depressing effect when present; and prevent it when in combination with acetanilid. The main point then is to combine the two, when continuous dosage of acetanilid is required, thus preventing any dangerous symptoms in those cases of peculiar idiosyncrasy before mentioned.

In addition to atropin, stimulants are of value in this as in other forms of depression.

Therapy. The application of acetanilid to morbid conditions has recently become of wider range as more intimate knowledge of its worth has become extant. It has been tried, and I am now giving it a trial as an intestinal antiseptic in the treatment of typhoid fever. At present I do not feel that its full worth has been ascertained, although so

far as my experience with it goes, I can give a favorable report. Of course, in this disease its antipyretic, as well as antiseptic action, is of value, and the combined actions suggest to my mind that it should be very useful. It may be combined or given in conjunction with other antiseptics and antipyretics as desired.

As with other drugs of a similar nature, it may not be safe to continue this remedy to the latter stage of the fever, because of the tendency to depression and exhaustion at this time. In the cases where I have used it, my practice has been to use it during the first and second weeks, or so much of these periods as seemed safe, meanwhile stimulating especially toward the third week. This is in conjunction with the usual bath and dietetic treatment.

Acetanilid has been suggested as a remedy in intermittent fever, either as an adjunct to quinine, or to displace it in those cases where the latter is not well borne. There are a number of reports of its value in this disease, and some quite enthusiastic ones. When used in cases of this fever in children, it is recommended to precede its exhibition by a dose of calomel. The amount of acetanilid should be in proportion to the age of the child, ranging from two to eight grains before the time of the chill, and repeated as necessary. Another plan is to give the above dose followed by ten grains of quinine just preceding the time of the chill. Continue the latter every six hours until forty grains are taken, and then continue the acetanilid. In neuralgias of various parts of the body, where temporary relief is imperative, I find no drug (excepting morphin) to give such prompt results. In sciatica especially, it seems to give relief from the acuteness of suffering, and may be used continuously if required. This may be said of facial or almost any neuralgia. Of course I do not want it understood that I consider it curative in all these forms, but I do consider it useful to a greater degree than other similar analgesics. It is especially beneficial in those cases of congested frontal sinuses, either due to recent coryzas, or those arising from exacerbations of an old rhinitis, especially where there has been an inflammatory extension. In

these conditions it may be given singly or in combination with other drugs of a similar nature.

In dysmenorrhœa it has proven of value, although I cannot speak from a very extensive use of it in this condition. In pneumonia it is reported to be of value when such drugs are called for.

Surgical Therapy.—The main use of acetanilid in surgery is that of a dusting-powder for wounds, etc. For this purpose it must be powdered very finely. This use is comparatively new, although now tested sufficiently to give it a permanent place as an antiseptic dusting-powder. It completely displaces iodoform. One reason is, because of its lack of odor. Another is, because it is by far a better and more powerful antiseptic. These two reasons cannot fail to strongly recommend it to the profession at large. I might add that the fact that it is cheap in comparison with many drugs used for the same purpose, makes it quite an acquisition for one who has considerable surgical work. The action of acetanilid upon an open wound, is first one of dryness. Soon granulations form, which assume a bluish tint, and which are of a very rapid growth. In ordinary wounds following operations, union is very prompt. My experience is that union is more rapid than under the stimulation of any drug formerly used. It has proved powerful enough to check suppurative where present, as well as to prevent it. In those cases where dirt and grease are in the wounds, acetanilid acts most happily. Such cases come largely from railroads, mills and factories.

In the great majority of these, we find suppurative almost sure to be present at some stage of the progress of the case, especially when the surgeon does not see the patient promptly after the accident. In a large number of these accidents, previous to my use of acetanilid, this result was frequent, although healing eventually came about. The subsequent experience with acetanilid in the same class of injuries, for a period considerably over a year, has given me entirely different results. Now it is as rarely present as it was previously a constant feature. This series of results, so favorable in comparison, induces me

to place acetanilid at the head of the list of remedies for this purpose. It is my belief that its use soon must become general.

In old ulcers, it is being used as a stimulant to the sluggish granulations. For this purpose it may be applied dry or in the form of an ointment, with good results. In chancroids it is used dry, both to act antiseptically and to promote healing. As the secretion pours out it forms a coating with the acetanilid, which acts as a protective from the irritating discharges. In this treatment of chancroids, we have about the best results.

In gonorrhœa it has been used with good results. In this disease it is used as an injection, by dissolving it in alcohol and diluting this sufficiently with water. In tuberculous sinuses it is being tried. So far, I think, it has not had sufficient testing to warrant a positive statement as to its utility, although favorable reports have been given.

Dr. Woods, of San Francisco, has recommended it for external hemorrhoids.

In some septic and irritable forms of skin eruptions it is said to exert a very beneficial influence. These avenues are still open for experimentation.

In conclusion, then, I will say that in acetanilid we have a safe remedy where antipyretics and analgesics are required, and one that will stand testing.

Again, as an external antiseptic, it embodies almost all the qualities of a perfect dusting-powder, and one that is proving daily that there is no uncertainty in its usefulness.

The price offered by the publishers of the *Gentlewoman*, for the best epigrammatic definition of the new woman was awarded to the author of the following: "A fresh darn on the original blue stocking." Among other definitions received were "The old maid trying to be the young man;" "Six of one and half a dozen of the other;" "A creature of opinions decided and skirts divided;" "One who has ceased to be a lady and has not yet attained to be a gentleman;" "Man's newest and best reason for remaining single;" "Madam become Adam;" "Mannishness minus manliness."

ABUSES IN THE TRIAL OF THE SUSPECTED INSANE.

R. M. McCALL, M.D.,* ANNA, ILL.

Having been connected with an insane hospital for some years, and my duties making it incumbent upon me to receive patients on their admission, and having studied carefully the histories written up in the medical interrogatories by the Medical Commission before whom they are tried, I have become convinced that there is frequently gross neglect, or a failure on the part of the examining board to properly study up cases so as to make a decision which would be to the best interests of all concerned.

I have often thought that it was too frequently the case that doctors called to sit as judges in an inquisition to decide as to the sanity or insanity of the individual placed on trial, looked upon their decision as a matter of but little importance. This should not be the case in matters of such grave import to the individual, his family and the community in which he lives.

I would not for any consideration detract one iota from the fact that in true or real insanity an early and correct diagnosis is highly beneficial to the person, unless satisfied it is some acute form from which he may recover at home in a short time, if so given the chance. But if otherwise, the earlier the person is removed from home environments and probably from objects that bring up sad reflections, the better.

To let the old mental tablets of the brain be replaced by new impressions by being removed to a hospital where the surroundings are different, proper restrictions observed, and proper medicinal treatment, is far the best, and in many instances the only hope of cure.

But what I want to impress upon the minds of those who have charge of these boards of inquiry is to be more careful in their investigations, and to not make the mistake so often made of sending to an insane asylum a patient suffering from a delirium, or I might say a maniacal delirium resulting from some physical disease, that could be easily con-

trolled in a short time by suitable home treatment.

It is true that we have forms of insanity that very closely resemble delirium, resulting from some slight physical derangement. In fact, it is only by a close scrutiny of the patient's physical condition that a differential diagnosis can be made; but notwithstanding this, those forms of insanity are, as a rule, of short duration, and are very amenable to treatment; and with watchful care could be kept at home, and not be subjected to the stigma of having been detained in a mad-house.

I have cases that would bring tears to eyes unaccustomed to weep. I call to mind a lady of refinement and intelligence, surrounded by a coterie of intelligent friends, with every promise of a happy future, but alas, she fell a victim to typhoid fever with active delirium of a very persistent character, and, if we see proper we may call it acute confusional insanity. At any rate, she was tried by a Commission of Lunacy, pronounced insane, and brought to the hospital. When she arrived here her temperature was 103° F., active delirium, abdomen tympanitic and tender, and every symptom indicative of typhoid fever. The second day after her admission she had two very severe hemorrhages of the bowels, and could we wonder, after being transported here in an ordinary car (no sleeper) one hundred and fifty miles, changing cars at two or three stations?

All this occurred in the third week of the fever, but thanks to a good constitution, in two weeks she was convalescent, and with a return of physical health the mind resumed its normal functions. I will use her own words in expressing her feelings in regard to this matter—"Oh, why did they not keep me at home? The Board of Inquisition that sent me here has blasted every prospect of my life. I have my way to make in the world, and now every avenue is cut off, and I shall be met by the expres-

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sion, 'Oh, she has been in an insane asylum, we can't trust her.' " I am sorry to say her words are too true, and her chances in the battle of life are as much handicapped, so far as business and social enjoyments are concerned, as though she had served in a penal institution. Pardon me if I have painted this picture too dark, but I have other cases less justifiable.

There were two ladies admitted here who had but a very short time before passed through the parturient period, suffering with every characteristic symptom of puerperal fever or peritonitis; temperature registering 105° F., and in an active state of delirium. In this condition they had been transported great

distances, when, as we know, they required the greatest quietude, and the watchful care of a skilled physician. It is useless for me to say that the result of hospital treatment was not what we always wish for. They both died.

I do not wish to reflect on any one, as all acted in good faith, but it behooves us to be more careful. Let us investigate more closely and inform ourselves better on the more prevalent forms of insanity. Let us thoroughly investigate the physical condition of the individual, and be sure we are acting the better part for the welfare of our patient, and if I can prevent one such occurrence as those named I shall consider myself well repaid for my trouble.

COMMUNICATIONS.

ASEPTIC SURGERY: ITS APPLICATION TO PRIVATE PRACTICE.*

SAMUEL LLOYD, M.D., New York.†

It would be interesting to trace the present knowledge of surgical infection back through all its phases of development.

The subject can be best studied, historically, by a review of the chemical experimentation that settled the vexed question of the causes of fermentation and of putrefaction. The present status of surgery depends, primarily, upon the efforts of chemists, especially those interested in wine and beer production, to determine why milk turns sour, grape juice becomes wine, wine vinegar, and vinegar "a foul, insipid fluid," without the addition of any chemical reagent.

The difficulty in explaining this change was due to the fact that no chemical formula could be evolved which fully represented the equation. It was easy to write a formula that expressed in definite terms the change

that had resulted in a given case, but it was impossible to explain what had set the process in motion. Why was it that milk would change from sweet to sour, showing that the milk sugar it contained had become lactic acid, while a solution of pure milk sugar in pure water absolutely refused to undergo the same process? It became evident that there was something else inherent to the fermenting process that set it in motion. It was to the discovery of this unknown entity that chemists bent their efforts.

The problem was gradually clearing up as far back as Von Helmont (born in 1577) who first showed that the gas eliminated during fermentation was different from the air and identical with that formed by the combustion of charcoal and the calcination of limestone.

Alcohol had long before been recognized. As far back as the eighth century distillation was known and practiced, but up to the thirteenth century pure alcohol was unknown.

Stahl (1660-1734), court physician to

* Read before the Clinical Society, February, 1896.—
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the Duke of Weimar (1687), Professor of Medicine in Halle (1694), and physician to the King of Prussia (1716), who originated the phlogiston theory, was the first to discover that vinous fermentation and putrefaction belong to the same class of phenomena. He explained both as "disturbances in the molecules of the fermenting body, brought about by the pre-existing molecular motion." Leuwenhoek, a Dutch philosopher, in 1680 found, with the imperfect microscopes in use at that time, that yeast consisted of minute globular or ovoid particles. Had his instruments been better, the phenomena might perhaps have been explained earlier.

It took until 1836 for Schwann and Cagnard-Latour, acting independently of one another, to prove that Leuwenhoek's globules were membranous bags, exhibiting the characteristics of vegetable cells and increasing and multiplying rapidly in the same way when brought under proper conditions. It had already been recognized that the yeast increased in vinous fermentation, and therefore it was natural that they should conclude that yeast was a plant, and that as it grew it in some unexplained way set up the chemical change. Schwann, in a series of elaborate experiments, attempted to settle the question of spontaneous generation, his yeast experiments being only a part of this problem. Leuwenhoek's discovery of the yeast fungus by means of his imperfect microscope had more to do with explaining putrefaction than fermentation, and surgeons began to recognize the fact that frequent changes of dressing had something to do with the prevention of putrefaction in wounds. In 1773 Muller had attempted to classify the different micro-organisms which had already been described, but this resulted in but little definite information.

In the same year (1836) that Cagnard-Latour and Schwann discovered that the yeast plant was the essential *vis-a-tergo* in the process of fermentation, and that it was composed of vegetable cells, that increased by direct multiplication, Schultze showed that putrefaction was not due to oxygen, Schwann (1839), Ure (1840) and Helmholtz (1843) repeated and confirmed this statement; while Downe (1836) described micro-

organisms in pus and in chancrous pus, and concluded that these organisms were not identical. One year later (1837), Beauperthuis, and still another year after, Adet die Roseville, also noticed the same thing, and they declared that these organisms were the cause of putrefaction. In 1837, Schwann, in addition to his work on fermentation, now published a series of experiments, in which he proved that these organisms acted in the production of putrefaction as the yeast plant did in causing fermentation, and he also proved their presence in putrefying meat and other albuminoids. From this time on these experiments were tested by various observers, and we should think they would have been adopted by chemists generally.

This was not the case, however, although micro-organisms were constantly being discovered. In 1849, Pollender declared that he had found micro-organisms in the blood of animals that died of splenic fever, and in 1850 Davainne and Rayer observed small, transparent, rod-like bodies, after a similar series of experiments, but they did not realize the importance of their discovery. Schroeder and Von Dusch (1854) published the fact that a cotton plug prevented the something in the air that set fermentation and putrefaction in motion from coming in contact with the solutions or solids that otherwise would become proper media for the setting up of the processes. In 1860, and the next few succeeding years, Pasteur settled the whole question by his masterly review of the field, and his own remarkable series of experiments. Following this came Lister's appreciation of the results of these experiments in their application to surgery, and his attempt to destroy the germs present in the air and the wound by antiseptics, and to prevent fresh contact of new germs with the healing wound by means of the cotton filter. This started the antiseptic era that has revolutionized surgery, and it is the results of these early experiments that have made bacteriology a science and enabled the surgeon to get away from the cumbrous methods of early antiseptics.

It does not interest us to trace the change that has been going on during the past twenty years. This is too re-

cent not to be thoroughly appreciated by all medical men of the present generation. The point that we are anxious to determine is whether it is possible to apply these methods in our private work. It has been fully demonstrated that in our large hospitals, with expert assistants in every department, with our carefully built operating rooms, where glass, marble and concrete enter almost exclusively into the construction, and where dust can be reduced to a minimum, and cleanliness is a virtue advanced beyond its usual position, and ranking before godliness, asepticism is possible.

It is the recognition of the fact that it is not the germ itself, as we formerly thought, that causes all the difficulties, but the products of the germ growth; therefore it no longer becomes essential to prevent the access of the germ to our wounds, so long as we can deprive them of the proper soil in which to grow, and eliminate the toxic principles. This is the essential point in all of our surgical work. In order to do this, however, it is best to destroy all living germs in the materials we are likely to use, as a dead micro-organism does not eliminate poison, and cannot take advantage of an error in technique that would leave it possessor of a kingdom fully ripe for the propagation of its poisons. Preparation for the operation becomes then the essential. I am going to confine myself largely to a description of my own methods, since I am convinced that these methods have contributed to my success in my operative work in the homes of my patients and in my office. Simplification is the important factor. It was the difficulty of application of the Listerian method that prevented its adoption by the general practitioner. But if one is inclined to be careful in his personal attention to details there is no reason why every case we are called upon to treat should not be treated aseptically now. This does not apply, however, to the large class of wounds where the germs have already secured their lodgment, and where the products of their growth have already produced suppuration and surgical infection. Here antisepsis must still be the fundamental principle of treatment.

It is also impossible, if one would be

absolutely certain of his results, to avoid the use of some antiseptics in the course of the preparation for an aseptic operation, but this does not prevent the operation itself being performed without bringing the wound into contact with any of the chemical germicides, in sufficient quantity, at least, to allow of their irritating qualities affecting the perfection of the result.

The question resolves itself into the natural division of the patient and his surroundings, the materials used in the operation and their preparation, and the preparation of the surgeon and his assistants.

Just here let me advise a very careful physical examination some days, if possible, before the day appointed. This should reveal the present condition of the lungs, the presence or absence of bronchitis, tuberculosis, emphysema, etc.; it will also determine the condition of the heart. The urine, I believe, should be examined several times—not simply once the day before, but every day or two for a week or ten days. This examination should be both for quantity and chemical and microscopical conditions. If this is done, it is possible that one may be spared some disappointment in the after results; for, if the patient has a lesion that would indicate a choice of anæsthetics, that choice can be exercised, and if a nephritis is present, one is prepared to deal with its increased intensity afterwards much better than if he has to find its presence by its symptoms during convalescence. Such examination, too, might yield results that would indicate greater difficulty in obtaining primary union, and would therefore settle the question, approximately at least, as to whether the trouble was due to the patient's condition, or to some error in preparation or technique.

The selection of the room is important. One should not be guided in this by the statement of the patient or friends, but should, if possible, visit the house and make the selection personally. I usually consider the light first. If there are two rooms, one with and the other without a carpet, but both with equally good light, I should select the uncarpeted one, otherwise the better light would lead me to decide in favor of

the room with the carpeted floor. Some operators insist upon the taking up of the carpet and the removal of all furniture, ornaments and pictures. If there is plenty of time, and this can be done a day or two beforehand, it is, of course, of advantage, but if it is not possible, or if it must be done on the day of operation, do not have the carpet or pictures touched. I sometimes question whether it is worth while to do all this at any time, for wet tea-leaves spread over the carpet will prevent dust from that source, and plenty of steam in the room will moisten the particles clinging to pictures, walls and cornices sufficiently to make them stick in their places long enough for us to finish our work and get the wound covered and out of danger from this source. Hangings at doors and windows, including window shades, should be taken away, because they must be brushed against, and are not likely to hold the dust as well. The latter, too, shut out light, and are objectionable on that account. Upholstered furniture should be removed, but do not, under any circumstances, allow of the invasion of this room by anyone armed with a broom or dusting-brush on the day of operation. The free dust may be removed with a damp cloth, but should not be driven from one place to settle in another by any brushing or dusting operations. Only within a day or two I was obliged to put a sweeper out of a room where I was preparing to do an emergency appendicitis operation, the family believing that a few leaves that had fallen on the floor from some plants in the window should be swept up before we began. The temperature of the room is important. If possible, an open fire or a coal stove I consider valuable, because it is then possible to regulate the temperature as we please before beginning to operate; fuel placed on the fire during the preparation of the room should be dampened sufficiently to prevent its adding to the floating dust particles. If there is a stove in the room, I always have a wash boiler filled with water and placed on the top. The steam contributes to the laying of the dust, and it is a reserve fund of hot water in case of necessity. An oil or gas stove may be used for this purpose also. At the same time that we select

the room we should give the necessary instructions about the furniture, and other preparations that must be made by the patients. It is absolutely essential that we should have a proper operating table; never operate upon a bed or couch. The position is uncomfortable and prevents good work on that account, and the bed or couch is very apt to be infected.

The best table is the one we are most apt to find in all houses, the ordinary deal kitchen table. This should be scrubbed off carefully with a bichloride (1-1000), or carbolic solution (1-40). If this is not at hand, a couple of horses can be made at the nearest carpenter's, like his saw horses, only higher; say thirty-six inches. We can use the leaves of an ordinary dining-room extension table on top of these. In an emergency, four chairs, provided they have a flat cross-piece across the top of the back, can be used. They are placed back to back and tied together, and the table-leaves, or a couple of boards, are tied to them by means of a piece of rope. Over this table spread several old but clean blankets. Four or five small tables that have also been washed should likewise be provided. If the carpet is to remain on the floor, something—oil-cloth, rubber sheet or pieces of carpet wrong side up—should be spread over it to protect it. As many china wash-bowls as are obtainable should be ready, with two or three wash pitchers and a foot-tub, wash-tub, or bucket for wash water. Four or five clean sheets should be wrung out of a 1-1000 bichloride solution and rough dried over night; as many towels as we can get should be ready. The family should be instructed to have plenty of boiling water, and there should be a good fire in the kitchen range, with a pan of some kind in which the instruments can be boiled. Some vinegar, or a bottle of household ammonia, for cleaning the hands and instruments after the operation, is a luxury that it is well to ask for. The room where the patient is to remain after the operation I prefer should not be the one where the operation is performed, for the atmosphere is necessarily impure, and it takes some time to rid it of the smell of the ether. This room should also be well ventilated and warm, and

the bed should stand out from the wall if possible, so as to allow of reaching both sides without moving it. The mattress should be brushed, and it should always be a firm one—never a feather bed; over it a rubber sheet should be spread, and then the ordinary lower sheet. At first I prefer that the patient should lie between two blankets so that one should be spread over the sheet with another ready to draw over the patient as soon as he is put to bed. The family are now instructed to warm the bed, during the progress of the operation, by means of a dozen wine or beer bottles filled with hot water, and these can be used against the patient's body to help warm him if necessary. It is important to make sure that these bottles are not too hot when the patient is put to bed for fear they will burn him and make a blister before he is sufficiently conscious to move.

The preparation of the patient, in addition to the physical examination already alluded to, should consist in shaving the parts about the operative field the day before. A soap poultice—green soap spread on gauze—is then placed over the whole region and left in place until the morning of the operation. The bowels should be acted upon freely, and on the morning of the operation the soap poultice should be removed and the patient should take a hot bath, rubbing the part that had been covered with the soap especially. On leaving the bath a compress only partially wrung out of 1-1000 bichloride should be put over the region that had been covered by the soap poultice, and kept in position until ready for the operation. We should make sure that a bed pan and urinal are at hand.

The preparation of the materials occupy most of the surgeon's time. If he has sufficient confidence in the different ligatures and dressings as they are prepared in bulk by the different manufacturers, he will be saved much labor. I confess I have not, and I never feel safe in an important operation unless I have personally superintended the sterilization of everything the evening before. This can be readily done without much expensive apparatus. Some operators use reef sponges still, and have good results. I have not had one in my office

for two or three years. I use absorbent gauze, cut into pieces eight inches wide, and the length corresponding to the width of the goods. They are then folded so that the raw cut edges meet in the center, making the width about three inches, and then the two selvedge ends are turned in until they meet. The goods is then folded lengthwise, until the whole piece measures about 3 x 4 or 5 inches, and it is basted about the edges with ordinary sewing cotton. These sponges are made up in quantities, boiled, and kept in well-covered glass jars, ready for use. Enough are always taken out of the stock jars when preparing for an operation, and boiled with the instruments (jar and all), in order to be perfectly safe. I prefer to supply my own towels for use about the patient, and for this purpose buy glass toweling by the piece, cut it into lengths of one yard, and have it hemmed. From 18 to 20 of these towels as they come folded from the laundry, are done up in two packages by means of two of the towels. The gauze for compresses is cut into strips a little wider than the sponge strips, and also pinned into a towel; the cotton is treated in the same way. Now take an ordinary clothes boiler, put in about three inches of water and add to this a small handful of washing soda. This is then placed on the range and allowed to boil. From each of the handles a sling made of ordinary gauze or toweling is hung, making a diaphragm across the boiler. The instruments are wrapped in a towel, excepting the knives, and put in the water, and the sponge jar is also dropped on its side in the water. The package containing towels, gauze, cotton and operating suits, which are wrapped up in the same way, are placed in this sling, the cover put on, and the whole left to boil for an hour or more. At the same time I put an asparagus boiler, three-quarters full of water, on a gas or oil stove in a closet where there is running water. A Dowd sterilizer is suspended above this, and the catgut is boiled in alcohol. In the asparagus boiler I boil my silk-worm gut and silk at the same time. This also boils for one hour. Then wash off several rubber aprons and rubber sheets with 1-1000 bichloride. After spreading a clean sheet over the operating table

these are laid upon it to receive the different sterilized packages when they are ready. As they cannot be wrapped in rubber until they have cooled somewhat, select the instrument trays to be used the next day and wash them in bichloride solution, and then set them on the table to receive the packages. As soon as these have cooled sufficiently they are wrapped in the rubbers ready for packing in the valises. In the asparagus boiler are boiling a pair of long-handled forceps and a vulsellum. The latter is to take the packages out of the sterilizer, and the former to pick out the bottles. Bottles and corks are boiled at the same time, and the corks are put back while the bottles are full to the brim and hot.

I sterilize everything—catgut and all—before every operation, and while preparing the dressings for the sterilizer prefer to wear an operating gown and to prepare my hands as for an operation.

As soon as everything is prepared it is packed in the bags, which are then locked.

The instruments are roughly dried with a sterilized towel to prevent their rusting if put away wet.

Kangaroo tendon is prepared in the same way, and at the same time as the catgut.

Gauze and muslin bandages may be sterilized with the towels and suits if necessary. I seldom sterilize a bandage because it is going outside of a good sterilized dressing, and it is to be in contact with the bedclothes and other articles that cannot be kept sterile. The final preparations at the house are very simple. The room that has been prepared for operation is dusted an hour beforehand with a damp cloth. The patient should go to bed about half an hour before the time, and the only clothes that should be left on are the night-gown and a flannel skirt and stockings for a woman, and a suit of pajamas or a night shirt and a pair of stockings for a man. I prefer to take off the night clothes if the operation is above the waist before beginning the operation, because it is almost impossible to prevent their getting wet in case it becomes necessary to use irrigation, and it is more troublesome to remove them after the operation than before. It

is best to have an old undershirt or undersvest and night clothes, that have been split down the front, ready to put on the patient as soon as he is returned to the bed. These are put on wrong side front so that the chest is well covered, but as the patient lies upon the back usually this does not need covering and simply rests in contact with the bed clothes. The advantage of this is that the patient is perfectly dry when put back in bed, and the clothing is easily changed without the necessity of raising the head or changing the position in order to put on his ordinary bed clothes.

On arriving at the house the operating table is covered with the old blankets, and with one of the sheets that have been wrung out of the bichloride solution. Under this sheet I usually place one of my rubber blankets, letting it hang over the side of the table, pinning the corners together so that it makes a trough to carry off irrigating fluids. The foot tub, wash tub or a pail is placed under this to catch the drainage from the table. A small pillow can be placed at the head of the table.

The small tables for instruments, sponges, etc., are now covered with towels belonging to the house, excepting the one on which the instruments are placed, with the catgut, etc. This is covered with one of my sterilized towels.

I usually have considerable bichloride, 1-3000, made up in order that if suppuration has begun we can immediately give up the aseptic operation, and adopt the antiseptic method. This is essential, because it would be impossible in an aseptic operation in many instances to so thoroughly remove all the products of suppuration that the wound would be rendered perfectly sterile, and the advantage of the antiseptic method is that it does kill some of the germs, and occasionally so controls their activity that we are able to get rid of the suppuration, and get a comparatively clean wound.

A very good plan in buying instrument trays is to get a couple of sufficient depth that they can be used for the boiling of the instruments, as we do here in the hospital. The instruments are then placed in one of the trays, which is filled with water containing wash soda, and the other tray is placed on top of this.

They can then be placed upon the range or upon a gas or oil stove, and the instruments boiled. The tray is, as soon as the boiling is completed, carried directly to the table prepared for the instruments, the top tray is turned over, filled with boiled soda solution, and some of the instruments transferred to it. In this way both trays and instruments are thoroughly sterilized at the same time, and the annoyance is avoided of asking the family for a utensil to boil the instruments in.

A bottle of 95 per cent. carbolic acid should make up a part of the armamentarium. I do not care about this for immersing instruments, but it is well to have it on hand so that the knives can be sterilized without boiling, which destroys their temper and cutting edge.

Simple boiled water answers for the sponges, and the pitchers are filled also with boiled water containing a 6-10 per cent. salt solution for irrigation.

The dressings, gauze, cotton and bandages are not removed from their packages until they are to be used.

Everything being ready, the patient is anesthetized in bed and transferred to the operating table. While the anesthesia is going on, the surgeon and his assistants must prepare their hands; and this is done by washing for five minutes in as hot water as possible, using a stiff brush; great care being taken to cleanse all ungual spaces by means of the nail scraper and the brush. Green soap, I think, should be an accompaniment of this cleansing process, and this may be prepared by taking $\frac{1}{2}$ soap, $\frac{1}{4}$ alcohol and $\frac{1}{4}$ glycerine, to which, if one wishes to be fastidious, a little oil of roses, or something else of the kind, may be added. The hands are then washed in absolute alcohol, and then in a 1-1000 bichloride solution.

During the course of the operation a basin of sterilized salt solution should be near at hand for the operator to wash his hands in as they get sticky.

As soon as the patient is placed upon the table, the surgeon himself, or an assistant if he is thoroughly trained, removes the clothing completely from the operative field, and cuts off the bichloride dressing which was put on in the morning. Hot water and plain soap are now used freely, with the brush, all

over the region. This is then thoroughly washed away, and plenty of ether poured on, and washed off with a couple of sponges or a sterilized towel. If the region has not been shaved the day before, this should be done before the washing with soap and water. If the operation is to invade the rectum or the vagina the same pains should be taken to wash them out that is taken with the external skin, using a brush and soap, and finishing with a good bichloride douche. The operative field is now surrounded completely with the sterilized towels that were prepared the night before, and they are held from slipping by being pinned together so as to leave a rectangular place open over the exact site of the operation.

In cases of abdominal operation a few of these towels are kept in hot saline solution for use in retracting the intestines as they come in the wound. I prefer these to sponges because they are too large to be lost in the abdominal cavity, and cover the field rather better than a sponge, and do not take up space.

Irrigation is never employed unless pus is found; care is taken to arrest all hemorrhage, either by torsion, ligature with fine catgut, or compression, until the wound is perfectly dry. In buried sutures, absorbable materials are preferred, usually catgut, but if we want to make sure that the sutures will hold for a longer time kangaroo tendon may be utilized.

In closing the abdomen it is preferable, in my opinion, to close each layer separately. It adds to the strength of the cicatrix, and makes it certain that the fascial layers do not gap so as to leave a weak point for the appearance of a hernia. This takes a little more time, but gives a more satisfactory result.

As soon as the operation is completed, and the wound closed, drainage having been used only in case of a pocket that cannot be occluded by sutures or by the dressing, the operative field is thoroughly cleaned with a towel wrung out of the salt solution, or out of the bichloride, as the case may be.

The packages of dressings are then opened and sterilized gauze placed over the wound. I do not use "protective" over the incision, as I believe this sometimes allows of retention of secretions,

and it confines the moisture from the skin which it covers, and which should be absorbed by the dressing.

Plenty of gauze having been used over the wound to make quite a pressure, a good layer of cotton is placed over all, and this is bandaged in place. Unless some reason arises this is not disturbed for eight or nine days. In drainage, I prefer gauze to anything else, and in abdominal drainage it is preferable to wait before removing this gauze until it gets loose, particularly if it has been placed in position to arrest oozing.

As you notice, nothing has been said about the preparation or use of iodoform gauze. I do not care to have any of the antiseptic powders in my wounds unless suppuration is already present. In abscesses needing drainage and packing, iodoform gauze is employed, and this is prepared by rubbing iodoform into the sterilized gauze; but unless suppuration is present, plain sterilized absorbent gauze is the only thing introduced into the wound cavity, or as a dressing over a closed incision.

After the patient has been put to bed the instruments are transferred to a pan of clean, boiling water, the blood is rinsed off, and they are simply dried sufficiently to prevent rusting. If the blood is dried on, a little vinegar will help to remove it. They are then wrapped in a towel, and on reaching home are boiled in the sterilizer, cleaned with electro-silicon or other polishing material, and put in the closet. In this way my instruments are boiled three times for every operation.

At the dressings the same precautions are taken as with the operation. That is, the hands are prepared carefully in the same way, and the bed and bed clothes about the wound are covered with sterilized towels.

In all operative work, and in all dressings, the surgeon's outer garments should be covered, and his sleeves should be rolled up above the elbows, the preparation of the hand including the preparation of the whole forearm.

I emphasize the necessity of covering the clothing with a clean sterilized gown, because I am convinced that I have on one occasion, at least, been the cause of an epidemic of erysipelas that occurred among my operative patients, and that

the infection was in some way carried on my hands or in my clothing. This danger is intensified with men who are doing a general practice and dealing with infection of different kinds, and they should exercise greater precautions than those who devote their attention exclusively to surgery, and whose septic infection is most likely confined to the streptococcus and staphylococcus pyogenes.

This seems like a tremendous undertaking for the general practitioner, but if it is conducted properly it need occupy very little time. A few minutes suffices for the preparation of the bundles to be steamed, and I usually do this either at night, after every one in the house has retired, or else during my office hours in the morning, as once these articles are placed in the sterilizer one has nothing to do until they are ready to be taken out, and one can attend to any other duties. It takes but a few minutes before removing them, to wash one's hands, and slip on a gown, and the actual time occupied will not exceed half to three-quarters of an hour, provided the sponges, the gauze, and the towels are already at hand, and do not have to be made during the preparation for the operation.

I usually sterilize a much larger quantity of everything than I expect to use in any given case. The surplus stock does for office work and obviates the necessity of constant sterilization to provide material for office dressings.

Once mastered, the technique of this method will become a matter of routine, and I believe we should carry out the preparation just as carefully for a septic as for an aseptic case, and my results have been so good since I have been using this method, that I believe it can be adopted in ordinary surgical work. I do not mean to say the proper results are reached in every case. This would be ideal and impossible, still it should be remembered that suppuration at the present time is probably due to some error in technique, and should lead the operator to a careful scrutiny of his methods and a study of the different materials used in the operation. If he understands bacteriology at all he should understand enough of it at least to take care of the surgical bacteria. Cultures should be made of the different materials employed in order to determine if pos-

sible the source of the infection. Absolute confidence in and satisfaction with any given method of preparation is to my mind indicative of either faulty observation, or practice upon a small number of cases, for in a considerable surgical experience one is sure to find cases that do not yield perfect results.

I have, however, used this method successfully in a vast majority of my operative cases in the last few years.

This includes abdominal sections for various purposes, herniotomies, suprapubic cystotomies, trephining, amputations of the mamma, amputations of the extremities, plastic operations, and so on, through the range of general surgical work. It is exceedingly rare to have suppuration, and when suppuration has appeared, it has usually been possible to trace it either to the condition of the patient prior to the operation, or to some distinct error in my own technique.

THE SURGICAL TREATMENT OF PERFORATED GASTRIC ULCER.*

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The subject of gastric ulcer is more fully treated in medical than in surgical text-books. It is with the complications and sequelæ of gastric ulcer that the surgeon is especially interested. I will not enter into a discussion of the etiology, course and treatment of ordinary gastric ulcer, but I may say that it is found in the stomach and in the duodenum as far down as the point of entrance of the common bile duct. It may be occasionally due to traumatism or corrosive poison, but the opinion seems to be pretty general that probably in the majority of cases it is due to a deficient blood supply to a small area, and that this spot deprived of its blood supply is digested or destroyed by the action of the gastric juice. As a rule when the condition is recognized and submitted to proper treatment the ulcer heals, and unless the process has been very extensive the resulting cicatrix causes no permanent disability. But unfortunately it occasionally happens that serious complications arise that jeopardize the life of the patient. For example, if the ulcerated surface is extensive the stomach may become so contracted and deformed during the healing process that impairment of function results. If the ulcer is situated at the cardiac or

pyloric end stenosis may follow and operative interference be required to remove the obstruction and allow food to enter or leave the stomach.

Another alarming complication is hæmorrhage. This is seldom fatal, and only when it continues to recur to such an extent as to threaten life—as evidenced by collapse and hæmatemesis and melæna—would the question of operative interference arise. In two such cases, however, Küster, of Marbourg, has opened the anterior wall of the stomach, cauterized the ulcer and then performed a gastro-enterostomy. Both cases recovered.

A third complication, which unless relieved by surgical measures, is fatal in about 95 p. c. of the cases is perforation of the wall of the stomach or duodenum, permitting the contents to escape into the general peritoneal cavity, and there lighting up a fatal septic peritonitis.

Although gastric ulcer is more common on the posterior wall of the stomach than on the anterior, perforation occurs more frequently on the anterior wall. The reason for this is that ulcers on the posterior wall more frequently cause adhesions, especially to the pancreas, and thus a perforation into the general peritoneal cavity is avoided. Another reason why perforation is more common on the anterior wall is that the symptoms of a gastric ulcer in this situation are less marked—which means that the

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ulcer is less readily recognized, and therefore less frequently subjected to rest and proper dietetic treatment. It is very important that you should be able to diagnose a perforation of the stomach when it occurs. In fact the life of the patient depends upon an early diagnosis and prompt closure of the perforation. The symptoms are not many, but they are urgent and characteristic. They are very clearly detailed in the report which is appended.

When an anæmic young woman, with a history of indigestion, is suddenly seized with symptoms of acute peritonitis, you should at once wake up to the fact that you may be dealing with a case of perforating gastric ulcer. This young woman, aged twenty, was admitted to the Montreal General Hospital about 6 P. M. on the 9th of October, 1895. On October the 8th, about midnight, she had been suddenly seized with intense pain in the epigastric region. She could put the end of her finger on the spot where the severe pain first appeared, and where the greatest tenderness to pressure still remained. During the night the pain spread along the left costal margin and then over the whole abdomen, which had already, eighteen hours after the onset of pain, become very much swollen. The pain was of a sharp shooting character, becoming more dull toward morning, but at once rendered acute by any movement of the body. She had vomited several times during the night. Her pulse was 118, of fair quality, rather high tension. Temperature 103° F. Respiration, thoracic, quick and shallow. She gave a history of having been treated in the out-door department of the hospital during the past summer for indigestion. She had suffered from flatulence and vomiting after meals, followed two or three hours later by pain in the epigastrium, which was relieved by taking food.

Dr. Byers, the House Surgeon who admitted her, at once suspected the condition present, and summoned the staff for a consultation. When I saw her she was lying in bed with an anxious expression of countenance. Pulse, temperature and respiration as noted above. On making a physical examination the abdomen was found moderately dis-

tended. On asking her where the pain was most severe she put her finger on a point about two inches below the ensiform cartilage and a little to the left of the median line. On palpation, the abdomen was everywhere tender, but moderate pressure could be borne over the center in the umbilical region, over the hypogastrium on both sides, and over the situation of the appendix; but over the point where pain was first felt the slightest touch caused the patient to cry out. In perforative peritonitis there is always a point of maximum tenderness and that point is over the seat of perforation. In appendicitis it is over the appendix at the so-called McBurney's point, or if the appendix is turned up behind the colon it may be in the right loin. In perforating gastric ulcer, it is over the stomach. Pain may be more generalized, but the point of maximum tenderness is always over the seat of perforation and is the most important and reliable guide by which to localize the lesion.

As far as I could judge about half the liver dulness had disappeared. The lower half of the normal area of liver dulness was tympanitic. The presence of a tympanitic note on percussion over the region of the liver is very suggestive of a perforation of some part of the alimentary canal and the escape of gas into the peritoneal cavity.

The urine was high colored, sp. gr. 1030, acid reaction, no albumen, no sugar, urea grs. xiii. to the ounce.

The history and symptoms rendered the diagnosis of perforated gastric ulcer pretty certainly correct.

The prognosis was that if left alone the girl would certainly die in twenty-four to forty-eight hours of toxæmia from septic peritonitis. The indication clearly was to open the abdomen, close the hole in the stomach, and remove so far as possible all matters that had already escaped, together with the serum or sero-pus already formed. And it was important that this should be done at once, before the infection and inflammation of the peritoneum had gone so far that a favorable result would be unattainable. Twenty-two hours had already elapsed since perforation had taken place. Fortunately the matters escaping from a hole in the stomach are

not as virulent and irritating as those escaping from the intestine, and I think that this is the reason why peritonitis from an escape of stomach contents is less rapidly fatal than peritonitis caused by escape of intestinal contents, rather than, as Mr. Treves states in his Lettsomnian lectures, to a difference in the character of the peritoneum itself in the upper part of the abdomen.

The girl was taken to the operating room at once and I made an incision in the median line between the ensiform cartilage and the umbilicus, as you see by this cicatrix. As soon as the peritoneal cavity was opened, air and sero-purulent fluid escaped. The stomach was carefully packed around with sterilized gauze to prevent further escape into the peritoneal cavity and the opening in the anterior wall of the stomach readily discovered. It admitted my forefinger easily. The edges of the opening were, I should say, an inch or more thick. The greater part of the thick edge proved to be lymph. Now, one cannot stitch lymph. It will not hold a suture. The suture cuts out as soon as any tension is put on it. I had, therefore, to gently peel off the thick layer of lymph that I might get sound stomach wall to hold the sutures. On removing the lymph, I found that the ulcer had been evidently closed for a time by it, and that escape of stomach contents had occurred only when this reparative material had failed in its object, and that the ulcer was a very large one. When it was drawn out with its edges together the sew line measured three and a half inches. The edges were everted, and the mucous membrane had become adherent to the border of the rent throughout its entire extent. I closed the opening in the manner that you have seen done in wounds of the intestines, that is, first a continuous suture passing through all the coats of the stomach wall. This I believe to be an important part of the suturing. I then inverted the suture line and passed a continuous Lembert suture from one end of the rent to the other. If this is done neatly and carefully, it effects a closure absolutely water tight and air tight. I closed a typhoid perforation in this manner the other day, and, although the patient died about three hours after the

closure, Dr. Johnston, at post-mortem, tested the closure and found it quite impervious to water or air. After the closure was completed I wiped out all the fluids and lymph that could be reached, passed a glass tube surrounded by iodoform gauze down to the suture line, passed another small strip of the same down the calibre of the tube and closed the incision with two rows of sutures, catgut being used for the deep layer and silk-worm gut for the skin. I then made a small opening in the median line, midway between the umbilicus and the symphysis pubis, just large enough to admit a $\frac{1}{2}$ inch glass drainage tube, which I passed down to the bottom of the pelvis. It was well that I did this, otherwise I might have lost my patient, for there escaped through this tube, fully 20 ozs. of yellowish sero-purulent fluid. The tubes were removed on the fifth day. The patient has made an easy recovery.

Enemata of peptonized beef tea, with half an ounce of brandy, were given every four hours for seven days, and were well retained. During the first three days nothing was allowed by the mouth except a teaspoonful of water every half hour to allay the thirst. On the third day she was given an ounce of peptonized milk every two hours. This was gradually increased day by day.

On the fifteenth day she was given custard and a softly boiled egg. Then milk toast and arrow-root. At the end of the third week fish and chicken were allowed, and she now takes three pretty good meals daily.

This patient on the left was operated on by my colleague, Dr. Kirkpatrick, about a year ago. She made a perfect recovery and has remained in perfect health ever since. So far as I know these are the only cases of perforated gastric ulcer that have been operated upon in Montreal, and as you see they have both fortunately been successful.

In his Ingleby lecture Barling has reported thirty-seven cases by various operators, with thirteen recoveries. Several operations for perforating duodenal ulcer have been reported with, so far as I know, only one recovery.

Closure of a perforated ulcer on the posterior wall of the stomach is more difficult. Probably the better plan would

be to approach it through an incision in the anterior wall of the stomach. In that case the Lembert suture would be applied first and the through and through suture afterwards. The opening in the anterior wall of the stomach being closed in the same way that I closed the opening caused by the perforated ulcer.

Dr. W. G. M. Byers read the report of the case as follows:

She was admitted to the Montreal General Hospital at 4 o'clock in the afternoon of the 9th of October, 1895, complaining of severe pain in the abdomen. She stated that when about to retire the night before, that she was suddenly seized with severe pain in the epigastric region, which spread down along the left costal margin, and involved, during the course of the night, the whole of the abdomen. She could put the end of one finger over the point of maximum tenderness and pain. This point was situated beneath a line drawn from the tip of the eighth rib on the left side to the umbilicus, and about two fingers breadth beyond the costal margin. She did not feel any nausea, but she had induced vomiting twice during the night. She complained of headache, complete anorexia, thirst and dryness of the lips and mouth. The bowels moved once after the onset of the symptoms. She gave a history of having suffered more or less during the past five years from indigestion, weakness, constipation and slight hæmorrhages. For these symptoms she had been treated at the out-door department of the Montreal General Hospital.

I saw this woman about two hours after her admission to the Hospital, and found, in addition to the condition above noted, some fullness and rounding up of the lower part of the abdomen, with slight retraction of the upper zones. The liver dulness was distinctly less than normal, measuring in the nipple line only two inches, and in the mid axillary line two and a quarter inches. Cardio-vascular, respiratory, and urinary systems normal. Red blood corpuscles in the neighborhood of six millions, hæmoglobin eighty per cent. These symptoms, taken in conjunction with the past history of indigestion and chlorosis, and

the situation of the point of maximum tenderness, made the diagnosis of perforated gastric ulcer tolerably certain, and the indications were clearly to open the abdomen, close the perforation and remove the escaped matters and products of inflammation already formed.

Operation October 9, 1895. Incision in the median line, mid-way between the ensiform cartilage and the umbilicus, on a level with the point where the pain was said to have started.

On opening the abdominal cavity there was an escape of gas, and the lower border of the liver and part of the anterior wall of the stomach were visible. The edge of the liver was raised and pushed upwards, and the anterior wall of the stomach was found to be adherent on the left side of the median line to the anterior parietal peritoneum, by soft adhesions, which were easily separated by the fingers. Above, the anterior wall of the stomach was adherent to the under surface of the liver.

Upon separating the adhesions between the stomach and liver, and passing the finger along the anterior wall of the stomach toward the cardiac end, an opening in the stomach was come upon, large enough to admit the first finger up to the second joint. The walls of this opening were felt to be fully an inch thick; and on pulling the stomach forward, nearer to the abdominal opening, the greater part of this was ascertained to be composed of a thick layer of organized lymph.

As the thick layer of organized lymph would not retain sutures I peeled it off and then found that there had been an attempt to close a large ulcerated rent in the stomach by means of this layer of plastic lymph.

When the lymph had been completely separated, and the edges of the opening brought into a straight line, it measured three and a half inches in length.

The mucous membrane was everted over the edge of the opening, giving it the appearance of an indolent ulcer with the granulations raised above the margin.

The edges were brought into apposition and held by through and through or over and over sutures, passed through all the coats of the stomach, the mucous membrane being infolded so far as possible.

A second row of Lembert sutures was now put in infolding the first, except at the deepest part where, on account of the depth and exudation of the lymph, this could only be imperfectly done.

Leading to this spot a drainage-tube of rubber was introduced, and packed around with iodoform gauze. The wound was closed with silkworm gut sutures.

A small opening was made below,

above the pubes, for drainage; a considerable amount of yellowish, turbid, sero-purulent fluid escaped; a glass tube was then inserted into Douglas' pouch.

Her condition on leaving the table was good.

The patient is now, as you see, able to go about quite well. She takes three good meals a day with relish, and her digestion is apparently normal.

CURRENT LITERATURE CONDENSED.

The Remedial Action of Erysipelas in Syphilis.¹

A number of observers have noted the speedy subsidence of syphilitic manifestations under the influence of an attack of erysipelas, but little has been recorded to lead to the belief that it is ever cured by that means.

Dr. Rudolph reports two cases of temporary subjugation. A man fifty-two years old, with syphilis of twenty-nine years' standing, presented at the onset of the erysipelas a sore on the ala nasi and one on the right supra-orbital region. On the ninth day of the erysipelas the sores had healed, but the patient was not seen again. A young woman had syphilis for four years, and in spite of taking quantities of iodide of potassium and undergoing one course of mercury by hypodermic injection and two by inunction, was found to have several glands enlarged to the size of a pigeon's egg, under the lower jaw and posterior cervical glands, varying from a pea to a hazel-nut in size. She was very weak and emaciated and, in consequence of rheumatic pains in the knees accompanied by well-marked inflammatory thickening, could walk but little.

She said that this rheumatic trouble and also exceedingly severe headache had been present ever since she had syphilis. There was paresis of the left side of the face and occasionally spasms there. She was given another course of mercurial inunctions, and this having no effect she refused further treatment.

In about a year Dr. Rudolph saw her again, the syphilitic symptoms unabated, but she was also in the early stage of a severe attack of erysipelas which spread from the face over the entire head. In ten days the fever and the exanthem had entirely disappeared, the clusters of submaxillary glands melted away as the inflammation subsided; there was no more headache nor articular pain; the facial spasms and paresis gradually ceased; and her general health was so rapidly restored that she was enabled to resume work as a tailoress in the course of a month. A relapse occurred at the end of a year.

Petrowski recorded a case that seemed to have been permanently cured, as the man was under observation for several years.

Nitroglycerin in the Treatment of Sciatica.²

The advent of any new drug creates more suspicion than confidence, and such was the state of affairs when nitroglycerin first came to my notice in this affection.

In the *International Medical Annual*, Charles Lawrence is quoted as recommending its use in cases of obstinate sciatica, beginning with one minim of the one-per-cent. alcoholic solution and increasing up to five minims three times daily. Not being able to find his article in the original form, I used nitroglycerin indiscriminately on all patients with sciatic pain. All received marked

¹ Editorial in *The New York Medical Journal*, February 22, 1896.

² William C. Krauss, M. D., *New York Medical Journal*, February 29, 1896.

benefit from the very beginning of this mode of treatment. In the acute cases they recovered in from ten days to a month; in the chronic cases they improved notably and gained daily. The only discomforts arising from the use of this drug were congestive headaches and flushing of the face sometimes following the first dose of the medicine, while in others they did not supervene until the maximum doses were administered.

To counteract these effects the bromides may be used, thus robbing the nitroglycerine of all the physiological effects where they are not wanted and allowing it to proceed without hindrance where it is needed.

I do not wish to convey the idea that nitroglycerine will cure every case of sciatica—far from it; but if it cures fifty per cent. of all cases in a period of from two to three weeks it will be doing what no other drug or measure has heretofore done. If after a period of administration of ten days no perceptible effects have been obtained, it should be abandoned. The treatment of anæmic conditions, diatheses and local causes must of course be considered and carried out in conjunction with the special treatment. From my experience I should advise beginning the treatment of sciatica with nitro-glycerine, and only after its inability to cure is apparent, falling back upon the other drugs and measures with which we are all acquainted.

Neurasthenia.³

I propose to consider the relation between the condition termed neurasthenia and diseases of the genital tract in the male and female in the four following propositions:

1. In patients of neuropathic predisposition, genital lesions may act as an exciting cause of nervous affections. The removal of the former does not necessarily cure the latter, as the removal of a spiculum of bone need not cure the epileptic fits induced by it.
2. The genital lesion may be one of a number of causes. This is most frequently the case.
3. The genital lesion and the nervous affection may be merely

coincident, or both results of the same cause. 4. The genital lesion may be the result of the nervous affection. Experiments have shown that the sense of fatigue is due to poisoning of the cerebrum by the products of retrograde metamorphosis. "The blood of a tired animal is poison, and when injected into another animal causes the phenomena of fatigue." Vigoreaux, in a monograph upon this subject, claims also that all neurasthenics are arthritics, basing this upon the analysis of the urine in one hundred and fifty cases. The urine was invariably found to be highly acid. Bouchard believes that it is due to a gastro-intestinal auto-intoxication. Neurasthenia is sometimes a sequel of an acute infectious disease, as influenza or typhoid fever.

In the first place, then, neurasthenia is due to a toxæmia; due not to one, but to a variety of poisons. These are sometimes bacterial in origin, as in cases following influenza or gastro-intestinal fermentations; sometimes the poison is uric acid, but most often the nervous system is poisoned by its own excreta. Experience has shown drugs to be of little value and to act at best only as palliatives. It has been a matter of great surprise to me that intelligent physicians should be willing to remain in ignorance of such powerful agents as diet, exercise, hydrotherapy, massage and electricity. Not only this, but they look with suspicion on those who employ them. All of these, with the exception of electricity, have held their own since the days of Hippocrates. It has been demonstrated by chemical and microscopical examination that massage, hydrotherapy and electricity increase the number of red blood-cells and the amount of hæmoglobin, likewise the amount of hydrochloric acid in the gastric juice and improve the motility of the stomach. As concerns exercise, it needs to be prescribed with extreme care, since, as Beard has remarked, it may be either the worst or the best of remedies. Under the use of these remedies, combined at times with rest, I have seen patients who have been invalids for years restored to health and strength. Surely these agents deserve to be studied and used by the profession far more than they have been.

³ John Ford Barbour, M. D., *American Practitioner and News*, January 25, 1896.

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PHILADELPHIA, SATURDAY, MARCH 14, 1896.

EDITORIAL.

DOCTOR HIRAM CORSON.

According to Holy Writ, "The days of our years are three-score years and ten: and if by reason of strength they be four-score years, yet is their strength labor and sorrow; for it is soon cut off, and we fly away." So few are they who by reason of strength reach the outer limit, that for a man to live four-score years and ten is of itself remarkable. For one to enter his tenth decade with all the faculties intact, with mental vigor unabated, and with body bowed by no burden other than the weight of years, is extraordinary. But it is well nigh marvelous that one should more than fill this measure of time, who,

for nearly seventy years had endured the self-ignoring life of a country doctor of the old school. Some idea of the superior quality of such a man may be gained by estimating the capacity of an intellect which could grasp and assimilate all those stupendous changes in medical science and practice which have taken place within the nineteenth century; and contemplating knowledge which, ever progressing, not seldom leading, was to the end of life fully abreast the times.

Such, nevertheless, is the history of one who, after ninety-two years of life of incessant activity and rare usefulness, could,

"sustained and soothed
"By an unflinching trust, approach the grave
"Like one that wraps the drapery of his couch
"About him, and lies down to pleasant dreams."

Dr. Hiram Corson died Wednesday, March 4th, at his home in Plymouth Meeting, and within sight of the place of his birth. When a year ago, he was compelled by advanced age to discontinue the active exercise of his profession, he was the oldest practicing physician in the United States.

From the beginning, Dr. Corson had been a warm friend of and a frequent contributor to the *MEDICAL AND SURGICAL REPORTER*, and in the pages of this journal appeared the last published of his valuable additions to medical literature.* The *REPORTER* mourns the loss of a staunch friend, whose passing has deprived the profession of a most wise counselor, and the public of a loyal citizen and generous philanthropist.

Until the *REPORTER* can present a fitting account of Dr. Corson's professional career, it must rest content to give the bare outlines of his life.

Hiram, son of Hannah Dickinson and Joseph Corson, was born in Plymouth Township, Montgomery County, Pa., October 8, 1804. After receiving a plain education in the Friends' schools at Plymouth Meeting and at Philadelphia, he studied medicine under the preceptorship of Dr. Richard D. Corson, of New Hope, Pa., and received his diploma in medicine from the University of Pennsylvania, March 27, 1828. The same year he established himself at Plymouth Meeting, where he continued in active practice more than sixty-five years. About the time he entered practice he married Ann, daughter of Edward and Tacie Foulke, who survived until 1887.

Dr. Corson was a member of the Or-

thodox Society of Friends, and was conspicuous for his influence in the meeting at Plymouth.

His early professional career was not marked by that serenity and passive submission to customs which amount to law characteristic of the sect of Friends, so much as it was a display of Quaker courage of conviction and indomitable persistence in acting thereon, and of sound common sense. Early in his experience he began the practice of the free use of cold water as a remedial measure in febrile diseases, notably in measles and scarlet fevers, and he never abandoned this line of treatment. When first introduced the cold water treatment was universally condemned by the profession, and Dr. Corson was denounced in the severest terms for his unheard-of defiance of the recognized scientific authorities of the time. But he persisted in his methods and his unusual success in treatment won for him at first tolerance, then respect, and finally fame.

His many contributions to medical literature are characterized by that same determined refusal to accept the decrees of scientific authorities unless confirmed by actual application, and the vigorous assertion of independence in thought, which found constant expression in his bed-side service. They bear the stamp of an intellect thoroughly trained, keen of observation, ready of apprehension, acute in analysis, logical in deduction, and prompt and courageous in application. A mind pre-eminently practical, fertile in resources, and largely endowed with the rarest common sense. The terse plain statements of his views leave little room to doubt that his theories were based upon his clinical experience, and his practice was not based upon undemonstrated theory. Theories must adjust themselves to facts as he observed them. He made no attempt to distort

*"Diphtheria and its Treatment." *MEDICAL AND SURGICAL REPORTER*, Vol. LXXII, No. 18. Page 617. May 4, 1895.

facts to fit theories evolved from scientific fancy. His articles were clear statements of conclusions based upon the every-day experiences of the practical doctor of the old school.

Dr. Corson was first among physicians of this country to advocate the formal recognition of women by the medical profession. And it was also largely due to his incessant efforts—although he had passed the three-score years and ten allotted to mankind—that the Trustees of the State Hospitals for the Insane were authorized by law to appoint women physicians for the care of the female inmates.

Dr. Corson's experience differs in at

least one respect from that of the average general practitioner of the old school of which he was a type, in that while he was yet living he was accorded fame and honor at the hands of the profession and the public. Although never seeking personal preferment, Dr. Corson held membership, active or honorary, in a number of national and local associations.

In ante-bellum days Dr. Corson was an active and earnest advocate of abolition, and rendered service in that movement with all the tireless energy and fearless activity which characterized his work as a physician.

CORRESPONDENCE.

COMPLETE INVERSION OF THE UTERUS.

Editor of the REPORTER :

Sir :—During the past year it was my lot to assist in a case of complete inversion of the uterus, and I describe it for the benefit of my professional brethren who have never met with such an experience.

One morning I was hastily summoned to the assistance of a brother practitioner who had just delivered a primipara after a natural labor; stages short, and patient strong. He stated that the placenta came away in about twenty minutes, after using slight traction, but with it came a large, hard, round body, the sudden collapse of the patient, and hemorrhage. The conditions induced him to call for assistance, and, as a result of the excitement created in the household, six physicians were promptly at hand. Being the first to arrive, after a brief statement from the physician in charge, I examined a great tumor that filled up the vaginal space, and immediately saw that it was either an abnormal growth or an inverted uterus. Slight traction exposed the whole mass. The surface was rough, and patches of placenta adhering to it convinced me

that it was the womb. On either side were the openings of the fallopian tubes, and over the abdominal region there was entire absence of any prominence. It was a complete inversion of the uterus—the body, fully ten inches long and five wide, protruding beyond the labia.

The patient was rational; pulse, rapid; face, pallid; pain, acute; condition, alarming. What must be done? I confess for the time being no deliberate course presented itself. A hasty consultation resulted in no suggestions which would enable us to proceed intelligently, but we were fully aware that something must be done if we would save the mother. To compress the organ and then force it to its place was the first thought. This idea soon led to another, and immediately I inserted my hand into the vagina, grasped the body at the fundus and gently worked it upward. After a few moments I found it was gradually inverting itself, and soon it dropped back into the abdominal cavity.

Our patient had been stimulated freely, and after the replacement seemed to revive without loss of consciousness.

The pulse became less rapid and stronger, but we soon found that this was only due to the stimulants, and in two hours death supervened. No post-mortem was allowed.

In connection with this case is presented the fact that one may exert too great force in the effort to speedily empty the womb. Although traction may not result in complete inversion of the organ, many sequelæ are, no doubt, the results of improper haste in removing the afterbirth.

Consider for a moment the conditions

of the supporting tissues of an inverted uterus. The superior, anterior and posterior, also the lateral or broad ligaments, with the contained vessels, all drain into this funnel-like collapse, and, probably, are stretched or torn from their natural attachments. These, coupled with the internal hemorrhage and the laceration of the peritoneum, go to make up a condition that warns us to be less hasty in our obstetrical work.

Respectfully,

JAS. H. MORGAN, A.M., M.D., Ph.S.
Wilmington, Del.

A WORD FROM ABROAD ON THE INTRODUCTION OF ANÆSTHESIA.

To the Editor of the REPORTER :

Sir:—In your issue of the 8th of February, Dr. J. G. Blount's excellent article on "Anæsthesia" put the genesis of the subject fairly before the medical profession; but in connection with modern anæsthetics I regret to find that the claims of Dr. Thomas Beddoes, of Bristol, and Dr. Richard Pearson, of Birmingham, do not receive the consideration which is their due.

With your permission, I wish to draw attention to the following facts, to wit: Prior to the time that Mr. H. (afterwards Sir H.) Davy came to assist Dr. Thomas Beddoes in the Hotwells Pneumatic Hospital, Dr. Beddoes was familiar with the anæsthetic effects of nitrous oxide gas, and had given inhalations of it to Mrs. Beddoes and to Coleridge, the poet.

Knowing its pain-killing effects, he recommended his assistant, Mr. Humphrey Davy, to inhale some of the gas to stay the pain of the toothache. Inhalations of narcotics for toothache were the commonest of remedies, and numerous formulæ for henbane and other narcotics to be used by inhalation, are found in Saxon leechdoms.

Davy's friends properly claim that he suggested the use of the gas by inhalation in surgery, which may be granted. But the extension of the use of factitious airs to surgery was not much for an assistant in Hotwells Hospital, where they were being used for every form of disease and sore. The great fact that factitious airs could be inhaled with safety, and

that they could be used as medicinal agents, are of Dr. Beddoes's demonstration.

Etherization is first, so far as I can discover, recommended by Dr. Richard Pearson in a letter written to Dr. Beddoes from Birmingham, which bears the date of the 2d of February, 1795. He writes: "In my little publication, I can scarcely call anything my own but the observations on the vapour of ether, the probable use of which in phthisical cases, your consideration on factitious airs, first gave me the idea. As the number of consumptive persons in this large manufacturing town is deplorably great, I have had frequent opportunities of trying the inhalation of ether in such cases, and I have the satisfaction to say I found it very beneficial."

For its use in surgery we are indebted to Long, of Georgia, whose claims are placed beyond doubt by the recent articles in the *Virginia Medical Monthly*.

Yours truly,

Dublin, Ireland. GEORGE FOY.

MRS. MULCAHY—An whin do the powthers be taken?

APOTHECARY—Early in the morning, fasting.

MRS. M.—Phwat do you mane by fastin?

APOTHECARY—On an empty stomach.

MRS. M.—Howly Moses! An how! I iver ketch me ould man that way? Sure, he's full as a goat whin he wakes up!

ABSTRACTS.

THE TREATMENT OF GALLSTONES.*

In the endeavor to render our treatment of gall-stones rational, we naturally study the causes which induce their formation and the manner in which we can expel those stones which have formed before the case has come under proper care or in spite of any preventive measures which we may have attempted. Unfortunately, we are met at the very beginning of our study by the fact that the physiologist and pathologist have not as yet discovered the exact characteristics of the general systemic conditions which underlie their formation; but, on the other hand, experimental and clinical studies have developed a number of facts which are of great value to us. Thus, we now know that there are a number of local causes which distinctly predispose to the formation of gall-stone, and that these causes are very commonly found in that very class in which the systemic tendency to stone-formation is most marked. In the first place, a catarrhal state of the biliary passages favors the formation of gall-stone by providing an excess of mucin, with the aid of which the stone may be built; secondly, this catarrhal state is commonly associated with, or produces of itself, a diminished alkalinity of the bile, whereby the cholesterin becomes more readily precipitated, and at the same time, it would appear, causes the deposition of an abnormal amount of lime salts, brought from elsewhere in the body and passed out through the mucous membrane. This latter fact seems proved by the circumstance that bile itself contains very little lime, and that more lime is found in stones lying against markedly catarrhal mucous membranes than in stones not so situated. So far, then, we have a simple pathological process providing no less than three ingredients of stone-formation—namely, mucin, cholesterin, and stearate, or some other salt of lime. There are still two

other important factors at work,—namely, the systemic state, gouty or otherwise, which tends to stone-formation, and the stasis of the bile in its ducts, because the catarrhal process in the mucous membrane blocks its passage toward the bowel.

Recognizing these etiological factors, it now becomes our duty to oppose them, and we have the following indications to fulfill. 1. By causing a free secretion of bile to produce a rapid flow of fluid, which shall be normally liquid and probably normal in its constituents. 2. By the use of alkalies to antagonize the development of acid tendencies and to aid in the solution of mucus. 3. By regulating the diet prevent those hepatic and systemic disorders which tend to the formation of stone. 4. As catarrhal states are often due to or aided by bacterial infection, to produce intestinal asepsis as far as possible.

The normal secretion and flow of bile is best brought about by exercise of a gentle and wisely-directed nature, taken continually and evenly, and particularly those forms of exercise which call into play the abdominal muscles and diaphragm or cause hepatic movements. The chief and best of these is horseback riding, or, if the patient is too feeble for this, massage should be resorted to, the hypochondrium being well but gently kneaded and rubbed daily for a considerable period of time. If the liver seems very torpid, calomel may be given in small divided doses of a fraction of a grain several times a week, or nitro-muriatic acid may be more rarely used. In other instances, where there is reason to believe that the flow is sluggish and the bile not sufficiently alkaline, that catarrh and putrefactive tendencies are present, the administration of benzoate of sodium or salicylate of sodium, in 10- or 20-grain doses, will result in increasing the flow, increasing the alkalinity, overcoming the catarrh, and tend to arrest intestinal putrefaction. If the

* Editorial in *Therapeutic Gaz.*

catarrhal process is very marked, chloride of ammonia will act even more satisfactorily. This treatment seems especially valuable when the stones that are passed are very dark in color, indicating that much pigment and little cholesterin is present. In respect to the use of alkalies, the patient should drink freely of those mineral waters which will provide alkaline substances, such as Contrexéville, Vichy, and Kronenquelle, and it is useful in many such cases to relieve any tendency to constipation or duodenal catarrh by the administration of hot Carlsbad water before breakfast daily. In the matter of regulating the diet, all rich or fatty foods are to be prohibited. Meat should be used in moderation, preferably white meats, and green vegetables largely eaten.

The catarrhal condition, associated with marked bacterial infection, as may be evidenced by some febrile movement, is best controlled by the use of turpentine, chloroform, and ether, given internally, and accompanied by the application externally of hot poultices to the hepatic area. These poultices may or may not be fortified by mustard, and when removed should be replaced by a

warm pad to prevent any chilling of the surface of the body.

Of the internal remedies just named, turpentine is the most useful, since it liquefies mucus, aids the flow of bile, and is thought by some physicians to cause the expulsion of the stone by stimulating the walls of the ducts, and that it dissolves the stone. Further than this, its continual use seems to prevent the formation of stone. Ralfe states that it is best given as follows:

Ol. terebinthinæ m v
Syrup. acaciæ f 3 ss
Sodii sulph. carbolat gr. xx
Spt. ætheris composit. m xv
Aque menthæ piperitæ q. s. f 3 j
To be taken twice or thrice a day.

We would prefer adding compound spirit of lavender instead of peppermint-water. If the mixture cannot be retained by the stomach, the turpentine may be given in capsule, and followed by a draught of milk.

Finally, a most important factor in the prevention of gall-stone formation in susceptible persons is the avoidance of exposure and wet, and, if possible, a residence in a sunny climate during winter months.

CURES FOR TUBERCULOSIS.*

A correspondent asks us our opinion concerning an alleged "new cure for tuberculosis," of which he has learned through the daily newspapers. We have no other information on the subject than that which our correspondent has had access to, and can answer only upon general principles.

In the first place, scientifically-minded men without a selfish object in view do not, as a rule, seek the daily newspapers as their medium of communication with the learned world. Scientific societies exist for the purpose of receiving announcements of new discoveries, new methods, new inventions, or new facts in relation with old discoveries, methods and inventions. Communications brought before these bodies are welcomed, but impartially judged. To receive atten-

tion they must be accurate, and to receive assent be accompanied with demonstrations of the facts alleged. Nor must such communications contain any secret reservation except it be said that the process, or method, or discovery, has not yet been fully worked out, and that hence the preliminary notice is given merely for the purpose of making a record; in which case it is expected that the communication shall be completed, and all facts known to the author be published at the earliest possible moment.

On the other hand, men not scientifically-minded, and having selfish objects in view, usually do seek the least critical and most public channel of communication for their alleged discoveries, methods, and inventions. Their statements are not submitted to learned bodies capable of judgment, are not

*Editorial in *The Polyclinic*, February 29, 1896.

accurate, are not accompanied with demonstrations—for assertion is not proof—and the most material fact or alleged fact is usually withheld as a commercial secret. Even when there is no real secret, an air of mystery is thrown around the announcement so as to create the impression that there is still something in reserve known only to the alleged discoverer or inventor.

Let our correspondent try the new method of which he speaks, by the standard to which we have called his attention, and we doubt whether he will be moved to pursue the subject any further.

Furthermore, our knowledge of the etiology and pathology of tuberculosis should lead us to realize the fact that there can be no such thing as specific medication in the treatment of this disease. It must be managed upon broad, general principles, with special modification for each case. The secret of its successful management is summed up in the one word "nutrition." To secure proper nutrition resort must be had to an appropriate diet, both alimentary and respiratory. Certain medicines varying with the individual case, with the environment of the individual and with the special emergency, give material assistance.

We have published our views upon this subject at length, and this is not the place to repeat them; but while we do firmly believe that the majority of cases of tuberculosis will recover under intelligent treatment, and while we know that patients often recover from tuberculosis without treatment and in spite of treatment, we are equally firm in our conviction that any specific and exclusive plan of medication must necessarily meet with failure.

If, however, the object of the new "cure" is not so much to heal the sick as to gain money for its inventor, it may and probably will achieve great temporary success. Nostrums for consumption are probably the best-paying of all nostrums during the few years that their vogue lasts. Necessarily their flourishing period is restricted, for they soon cease to be "new" and cannot long continue to claim "cures." They die out with their victims in six years at most; or, at all events, unless their names and allegations of virtues are modified, they cease to be profitable. Usually they are still lauded as "preventives" or sold as "cough remedies," but as "consumption cures" they have become, as our German friends say, "*ausgespielt*."

SOCIETY REPORTS.

SECTION ON OPHTHALMOLOGY. COLLEGE OF PHYSICIANS OF PHILADELPHIA.

A Stated Meeting of the Section on Ophthalmology was held in the Lower Hall of the College of Physicians, on 17th of December, 1895, Dr. Wm. F. Norris, Chairman, presiding. Present: Drs. Friebeis, Hansell, Harlan, Norris, Oliver, Shaffner, Thomas, Thomson, and Zentmayer, Fellows of the College; and Drs. Chance, Krauss, Perrine, Shoemaker, Sulzer, A. G. Thomson, and Zeigler as guests.

DR. GEO. C. HARLAN made some remarks upon the so-called "*Corneal Reflex*" seen in ophthalmoscopic examination by the direct method. DR. WILLIAM THOMSON stated that he was very much interested in the paper, having made some experiments with both convex and concave lenses upon distant points of light, and had been able to obtain a series of both interesting and valuable entoptic

phenomena by the use of artificial eyes or any small object with a small radius of curvature which was about equal to that of the human eye. He had been able to discover slight corneal haze and lenticular opacities. He considered that the method was of clinical value in determinations regarding the transparency of the various media of the eye.

DR. HOWARD F. HANSELL spoke of the entoptic appearance of vitreous opacities in uncorrected myopia; these totally disappearing when proper corrections are placed before the eyes. DR. CHARLES SHAFFNER considered that some entoptic phenomena seen in myopia might be dependent upon disturbances situated in the intra-ocular circulation producing a low grade of engorgement and inflammatory reaction, and that vitreous

opacities so caused, disappear only gradually or not at all.

DR. CHARLES A. OLIVER read a paper upon the "Therapeutic Value of Hydrobromate of Scopolamine in Plastic Iritis," in which he showed that for quick and active measures, which are so necessary in the incipient cases of this form of disease and during the early stages of inflammatory reaction, the drug is very important; but where prolonged use is necessary, as in many cases of the chronic form of the disease with sub-acute exacerbations, the good effect does not seem to be so lasting. For these reasons, he has learned empirically to depend upon the drug where prompt action is necessary, but where more permanent effects are desired, he alternates its use with that of atropine. This was discussed by DRs. HANSELL, HARLAN, THOMAS, and SHAFFNER, who inquired as to its relative value as compared with other mydriatics. DR. FRIEBIS spoke of the general effects of several of the stronger mydriatics. To these queries, DR. OLIVER replied that in the dosages in which he had employed the drug, he had never seen any symptoms of poisoning, although in several of the cases in which he had used it freely, there were, at times, giddiness, incoordination of movement, and drowsiness. In regard to the question of intra-ocular tension, he intended to perform a series of experimental researches and to make a relative study of the other mydriatics with which the drug has been usually thought to be associated, or, in fact, considered identical.

DR. CHARLES HERMON THOMAS exhibited the latest and most improved form of Stevens' Tropometer, by which a magnified

view of the cornea appears against an illuminated scale, thus allowing an observer the exact register in degrees of arc measurement of the movement of the cornea across the scale from any definite point, thereby giving an index, as it were, of the length of excursion that is performed by any series of extra-ocular muscles in order to obtain the extremes of motion in either the horizontal or vertical meridians. He considered the instrument of value in the estimation not only of the manifest and the latent types of heterophoria and heterotropia, but of value in the recognition of paretic conditions of the muscle groupings.

DR. THOMSON related a brief history of a case in which the instrument evolved an absolute distinction between the directions of faulty action in a vertical strabismus which could not be determined in any other known way. DR. THOMAS gave the details of a similar case, and stated that he had received a letter from DR. GEO. T. STEVENS in regard to the liability of error in the reading of the measurements that is apt to arise unless the eye is absolutely primarily fixed upon the point of fixation; this, however, he had in a great measure provided against by change in instrumentation, whereby the head of the patient is kept almost motionless by clenching a removable wooden bit between the teeth.

DR. WILLIAM ZENTMAYER exhibited a case and showed a drawing of a cilio-retinal artery in which the two main branches extended into the macular region.

The Section then went into Executive Session. Upon motion, adjourned.

CHARLES A. OLIVER,
Clerk of Section.

PERISCOPE.

NEWS AND MISCELLANY.

Philadelphia Bacteriological Laboratory.

Dr. B. Meade Bolton, Chief of the Bacteriological Division of the Board of Health, has submitted his first report of the workings of the new department, covering a period from May 20, 1895, to January 1, 1896.

After the laboratory was in running order, May last, notices were mailed to every physician in the city stating that the Bureau was prepared to make examinations of suspected cases of diphtheria. Culture tubes were left at various police stations. It was requested that physicians avail themselves of the service of the laboratory, and that they should themselves inoculate these tubes from the throat of the suspected case, or should authorize a Medical Inspector to do so.

The system used for the examination, reporting, and recording of cultures from suspected cases of diphtheria was modelled largely

after the system employed in New York City. The culture outfit furnished consists of a test tube containing the Loeffler's beef broth blood serum mixture usually employed for this purpose, and of another test tube containing an aluminum wire with a cotton swab on the end. These are accompanied with a book with blanks to be filled by the attending physician. These books are returned to the Bureau, and records of them kept.

Examinations of cultures began on May 30, 1895, and from then until January 1, 1896—a period of 192 working days—3,363 cultures were examined; an average of 17.5 a day. Cultures in 1,207 cases, upon examination, showed disease, while 214 were made from the throats of healthy persons exposed to cases of true diphtheria, making a total of 1,412 cases examined bacteriologically. From these 1,942 secondary cultures were made and examined. Of the 1,207 cases showing disease, 775 showed on the examination of the cultures the presence of bacilli; 291 did not show the presence of

the micro-organism; and 144 cultures were unsatisfactory. In 705 cases, the attending physicians stated the clinical diagnosis. In the remaining 502 they either did not state it, or expressed doubt. The diagnosis of diphtheria in 557 cases was verified in 502 instances, or 90.2 per cent., by the bacteriological examination. Of the 705 cases in which a clinical diagnosis was made, it was sustained by examination in 86.4 per cent. Positive clinical diagnosis was not given in 502, or 41.5 per cent. of all, cases examined. The above cases included 469 in the Municipal Hospital. Of these latter cases 354 showed the presence of diphtheria bacilli, 87 showed no diphtheria bacilli, while one or more cultures in 28 cases were unsatisfactory.

A clinical diagnosis was made by the resident physician of the Municipal Hospital in 377 cases, of which 29 instances were, upon bacteriological examination, not verified. In 460 cases treated at the Municipal Hospital the average duration of each case was 32.3 days. This time is very long when compared with cases treated by private physicians, in which the average time is stated as being 23.6.

Difficulty has been encountered to obtain uniformly the toxin of sufficient strength. In this respect the experience in this city has not differed from that elsewhere.

The report gives the results of experiments with toxin upon eight horses, and concludes: "Nothing of special interest has been observed, and the procedure has not differed from that now generally employed. The series of four horses is being made the subject of special study, and will be reported on at another time along with another piece of experimental work. The blood serum of the horses that have been inoculated has been tested from time to time, but none of it has as yet proved to be strong enough to use in cases of diphtheria."

The Business Side of Medical Practice.

The points culled from various sources are worth repeating. "Dr. W. R. Allison, in the *Medical Review*, says: 'There are two things which I have never seen succeed in medicine: (1) To speak ill of your confrere. (2) To buy your patients by charging a small fee. A man who makes calls for seventy-five cents is a man of limited ability or from a college of inferior character. The dispensary scourge—that so-called benevolent fad which has wrought irreparable damage—does not contain the true essence of benevolence, but originates in the fertile brain of a keen desire for increase of practice (through the dispensary). The poor entreat us to be cheap in our charges and make the rich pay large fees. No other business is conducted upon such principles, unless it is to make medical men pay more for the same goods than is paid by the general trade. There should be an effort to formulate a fee table in our society—not a

fixed and definite charge, but a minimum rate—for which a less charge, unless excused by poverty, would cause a payment sufficient to prevent its repetition.' *Gaillard's Medical Journal* says: 'Lack of appreciation of the value of one's own work is another cause of small collections. The man who underestimates his own services cannot expect others to place a high value upon them. One of the chief violations of sound business principles is laxness in keeping accounts and rendering bills.' From the *Woman's Medical Journal*: 'We pay our lawyer without dispute. We pay, half the time on a sort of compulsion or shame, the minister's salary, and feel as if it was a sort of Peter's pence, and gave us admission to the gates beyond. We oftener make the minister presents, and often in our wills leave him a sum of money. We pay our tradespeople, but when it comes to paying the doctor we think twice. We did not think twice when we called him; we wanted him; we had him.'—*World*.

At the Atlanta convention a fact was developed which will have its influence on examining physicians in the future, that may surprise some members of the profession.

This will have no bearing on the honest examiner, but the fellow who was "in a hurry," who "was not paid enough," or who "wanted to help out his friend," will find his occupation gone, as far as his life insurance examinations are concerned.

For some time certain companies have had a "Confidential Information Bureau" and some doctors have wondered why they could not examine for certain companies. There is a possible explanation in the above fact.

Now, however, there seems to be a "league defensive and offensive," and all classes of companies are reporting to a common center from whence will radiate information as to any carelessness or seeming fraudulent purposes in passing unworthy applicants for life insurance, whether the companies be Old Line, Natural Premium, Assessment or Fraternal.

A word to the wise is sufficient. This fact will aid physicians in repelling the solicitations of unworthy agents, who want some unfit person passed. It will also be a nice bit of information for a physician to suggest to a friend who wants to be "let in."

The medical profession, as a class, is undoubtedly the peer of any known among the children of men, but an unworthy doctor is, above all, a most contemptible wretch, with powers for evil that are appalling. The underwriters of life insurance propose to down the latter class and they will undoubtedly have the hearty good will and co-operation of the medical profession in their undertaking.

The *Economist* does not intend to violate any professional secrets in giving this bit of information, because we think the fact will do no harm by publication.—*Western Economist*.